

The ENERGY STAR[®] Make a Clean Change: Recycle Your Old Washer Campaign

NEED Teacher Guide



Developed by the NEED Project in cooperation with the
U.S. Department of Energy and ENERGY STAR



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The ENERGY STAR Make a Clean Change Campaign

Background

The ENERGY STAR Make a Clean Change Campaign provides an opportunity for students to share what they know about energy efficiency with their families and community, encouraging them to make a difference by recycling an old clothes washer and replacing it with an ENERGY STAR qualified appliance. This teacher guide provides various campaign activity ideas to be used to strengthen students' knowledge about energy, energy efficiency and conservation, water conservation and steel recycling, as well as ideas to help students spread the word about the campaign.

Concepts

Replacing an old clothes washer with an ENERGY STAR qualified model saves energy and money.
Recycling an old clothes washer saves energy and natural resources.

Time

The campaign's primary timeframe is between June and September 2009. Activities in this teacher guide will take varying amounts of time depending on level of involvement. One week, or five class periods is recommended.

Preparation

Read through the teacher guide and select the activities you believe will benefit your students and those that fit into the timeframe you have allotted.

Part 1: Learn About It

Activity 1: Concepts Behind the Campaign

- Have students read nonfiction text about energy, efficiency and conservation, electricity generation and consumption, and recycling by reading NEED's Energy Infobooks. [Primary](#), [elementary](#), [intermediate](#) and [secondary](#) reading levels are available. Visit <http://www.need.org> to download and copy materials for students. Classroom sets of the Infobooks are available for purchase; call NEED at 1-800-875-5029 for more information.
- Have students read about the Make a Clean Change Campaign by exploring the ENERGY STAR campaign website, www.energystar.gov/recycle.
- Make copies of the **Clothes Washer Fun Facts** on page 5. Read with students.

Activity 2: Understanding the True Cost of an Appliance by Reading

EnergyGuide Labels

- Have students read through the "Appliances" section of the ENERGY STAR website: http://www.energystar.gov/index.cfm?c=appliances.pr_appliances. Reiterate the importance of the fact that appliances have two price tags: what you pay to purchase it at the store and what you pay utility companies each month for the energy and water the appliance uses.
- From there, have students click on "EnergyGuide Label" and read the information about EnergyGuide Labels. The link is http://www.energystar.gov/index.cfm?c=appliances.pr_energy_guide.
- Make copies of page 6 and review the parts of an EnergyGuide label with the class.
- Make copies of pages 7-8. Instruct students to complete the data table using the EnergyGuide samples on page 7. (Some information has been omitted from the samples so that students can analyze the two washers better.) Discuss the **payback period** - the amount of time it takes before you begin to save money - and its importance when comparing appliances. The average life for a clothes washer is 11 years. Be sure to discuss the difference in the **lifetime cost** of the two appliances, and stress that although an energy efficient appliance may cost more up front, in the long run it saves your family money.

- Washing machines also use gallons of water and energy to heat the water. To see these costs incorporated into the lifetime cost of our example washing machines, use the ENERGY STAR Life Cycle Cost Estimate for ENERGY STAR Qualified Residential Clothes Washers interactive Excel spreadsheet. Go to: http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers and click on “Savings Calculator” to begin. In the orange box, enter the information for the washers compared in this activity. You may want to select “gas water heating” instead of “electric water heating” if that is prevalent in your area of the country. Discuss the operating costs and lifetime costs for both appliances as shown in the green box. Finally, review the summary section in the yellow box.
- For some students, this may seem like a lot of fuss for such a small amount of monetary savings. But saving even a small amount of energy really adds up when you consider the number of homes in America with a clothes washer. This exercise will help students realize that the small energy saving choices you make in your home actually add up to huge energy savings as a whole. Work through the following questions as a class.
 - Compare the EnergyGuide Labels for Washers A and B again. Washer B, the ENERGY STAR qualified model, uses about 100 kWh of electricity less per year than conventional model A.
 - 100 kWh of electricity saved X 10.65 cents (or substitute your local electric utility rate) per hour = \$10.65 savings.
 - What if every student in the class used 100 kWh of electricity less per year? 100 kWh X 30 (or number of students in your class) = 3,000 kWh of electricity saved X 10.65 cents (or substitute your local electric utility rate) per hour = \$319.50 savings.
 - What if every home in your city used 100 kWh of electricity less per year? 100 kWh X 250,000 (or number of households in your community) = 25,000,000 kWh of electricity saved X 10.65 cents (or substitute your local electric utility rate) per hour = \$ 2,662,500 savings.
 - Remember that the monetary savings is just one aspect, the amount of kWh of electricity being saved per year is important, too. Those energy savings represent kWh of electricity your local utility company does not have to make, saving energy resources and reducing greenhouse gas emissions.

Activity 3: Learn about Steel Recycling

- Have students read nonfiction text about recycling by reading NEED’s Museum of Solid Waste and Energy which includes a section on steel recycling, and plans to create an “exhibit” about recycling that can be used to educate others. Visit <http://www.need.org> and click on “[Museum of Solid Waste and Energy](#)” to download and copy materials for students.
- Another good resource is the Institute of Steel Recycling website at <http://www.recycle-steel.org>. There is a section for educators with some lesson materials, such as nonfiction text on the Steel Life Cycle. There is a child friendly section with informative fun facts about steel recycling and games.
- Have students design a promotional brochure encouraging steel recycling. Include fun facts about steel recycling, steel’s life cycle, the recycling process and benefits of recycling. Hold a class vote for the best brochure.
- Invite a store manager or sales person from a local appliance store to speak to your class about appliance recycling. Have students brainstorm a list of questions before the interview.

Activity 4: Saving Energy and Water

- Have students read these sections of the ENERGY STAR website dealing with saving money, water and the environment: http://www.energystar.gov/index.cfm?c=clotheswash.clothes_washers_save_money and http://www.energystar.gov/index.cfm?c=clotheswash.clothes_washers_performance_tips. Review the **Clothes Washer Fun Facts** on page 5 again, too.
- Have students create colorful door hangers (template on page 10) with fun facts and tips for saving energy and water while using your washing machine.

Part 2: Spread The Word – Educate Your Family and Community

Activity 5: Spread the Word at Home

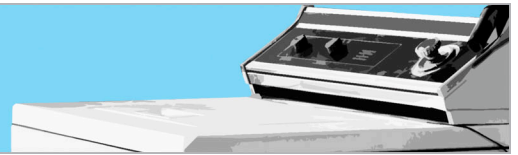
- Encourage students to brainstorm ways to share with their families what they have learned with the Make a Clean Change Campaign. Each student should prepare a presentation and rehearse it, then deliver the message to his/her family. Finally, students should report back to the class on their families' reactions. Did any family agree to recycle and replace an old washing machine?
- Hang your saving energy and water door hanger near your family's laundry room.
- Instruct the students to become Energy Saving Detectives by enlisting the help of their families to answer the questions on page 11.

Activity 6: Spread the Word in the Community (Suggested Activity Ideas)

- Let students brainstorm ways to share the Make a Clean Change Campaign message with the community. Plan and carry out community outreach and education as a service learning project.
- Set up Museum of Solid Waste exhibits in the school library and invite classes to walk through your museum. Or, set up the exhibits in the community library display case.
- Make copies of the steel recycling brochure the class voted was the best from Activity 3. Distribute copies to local businesses and ask them to post it.
- Have small groups of students write and perform skits related to the campaign's message. Perform for other classes at your school. Invite parents and perform the skits at a theater night or Parent Teacher Association meeting.
- Get permission to set up a student-run display by the clothes washers at an appliance store. Prepare a display with fun and informative facts about the Make a Clean Change Campaign, how to read EnergyGuide Labels, and tips for saving energy. Make sure students are prepared to answer questions.
- Design and create colorful hang tags (about index card size) that have energy saving tips for using your clothes washer, or promote the Make a Clean Change Campaign message. Get permission to place the hang tags on bottles of laundry detergent at a local grocery store.
- Write and perform local radio or cable public service announcements promoting the Make a Clean Change Campaign message.
- Design additional door hangers with energy saving tips and recycling facts and distribute in the community.
- Create videos of short songs, poems, skits or oral presentations encouraging others to purchase an ENERGY STAR qualified clothes washer. With permission, post these online to share.



Make a
CLEAN CHANGE.
Recycle Your Old Washer.



Clothes Washer Fun Facts

Millions of older, inefficient clothes washers are costing a lot!

- Clothes washers manufactured before 1999 use more than 4 times the energy of today's ENERGY STAR models.
- The life expectancy of a clothes washer is 11 years.
- An estimated 84.1 million households have a top-loading washer; 24 million of these are ten years old or older. Combined, the inefficient appliances use \$9 billion per year in energy and water costs.
- Your old washer could be costing you more than you think--and wasting nearly 30 gallons of water every time you do a load of laundry. Over the lifetime of the washer, you'd be wasting water equivalent to ten and a half years of daily baths!

Working together, Americans can make a difference.

- Every step we take to become more energy efficient and lessen our impact on global climate change is a step to preserve energy resources and our environment for generations to come. Just think: if every American home replaced their old washers with ENERGY STAR qualified models, together, we would save:
 - Enough water to fill the Rose Bowl nearly 8,000 times.
 - Enough energy to light nearly 6.3 million homes for an entire year.
 - More than \$5.3 billion in annual energy costs.
 - Prevent annual greenhouse gas emissions equivalent to the emissions of more than 1.5 million cars. That is more than the number of registered autos in Nevada and Colorado combined. Lined up bumper to bumper those cars would stretch from Anchorage to New York.
- Clothes washers are about 65 percent steel, the bulk of which can be recycled. Some items, like mercury switches that may be found in some pre-1972 models, need special handling by a qualified recycler.

ENERGY STAR makes it easy to save.

- Starting July 1, 2009, new ENERGY STAR clothes washers must be at least 43 percent more energy efficient than the minimum federal standard, plus they must meet stringent water efficiency criteria. This is an increase from the previous 37 percent level.
- Purchasing a new ENERGY STAR qualified clothes washer rather than a non-qualified model will save you an average of \$50 per year on your utility bills. Over the lifetime of the washer, you'll save enough money to pay for the matching dryer. Now that's a chunk of change!
- A new non-qualified clothes washer uses 18 more gallons of water with every wash than an ENERGY STAR qualified model. That wasted water is equivalent to a daily shower. Over the life of your ENERGY STAR qualified washer, you'll save enough water to fill three backyard swimming pools.
- ENERGY STAR is a government-backed program helping individuals and businesses save energy and protect the environment through superior energy efficiency. In a consumer survey released in 2007, 73 percent of respondents said ENERGY STAR influenced their product purchase decision-making, an increase of 10 percentage points from 2006.

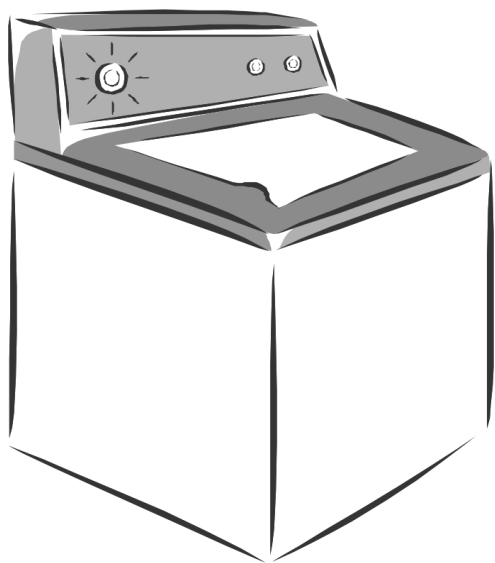
These fun facts have been compiled from a variety of sources and are rounded for ease of use. Direct any questions to Jack Henry-Rhoads, D&R International, technical contractor to the U.S. Department of Energy at jhrhoads@drintl.com

Reading EnergyGuide Labels

Big appliances – like refrigerators, dishwashers, and clothes washers – use a lot of energy in homes, schools, and businesses. Some appliances cost more than others to buy. Some appliances use more energy than others. Usually, the more expensive models use less energy than the cheaper ones.

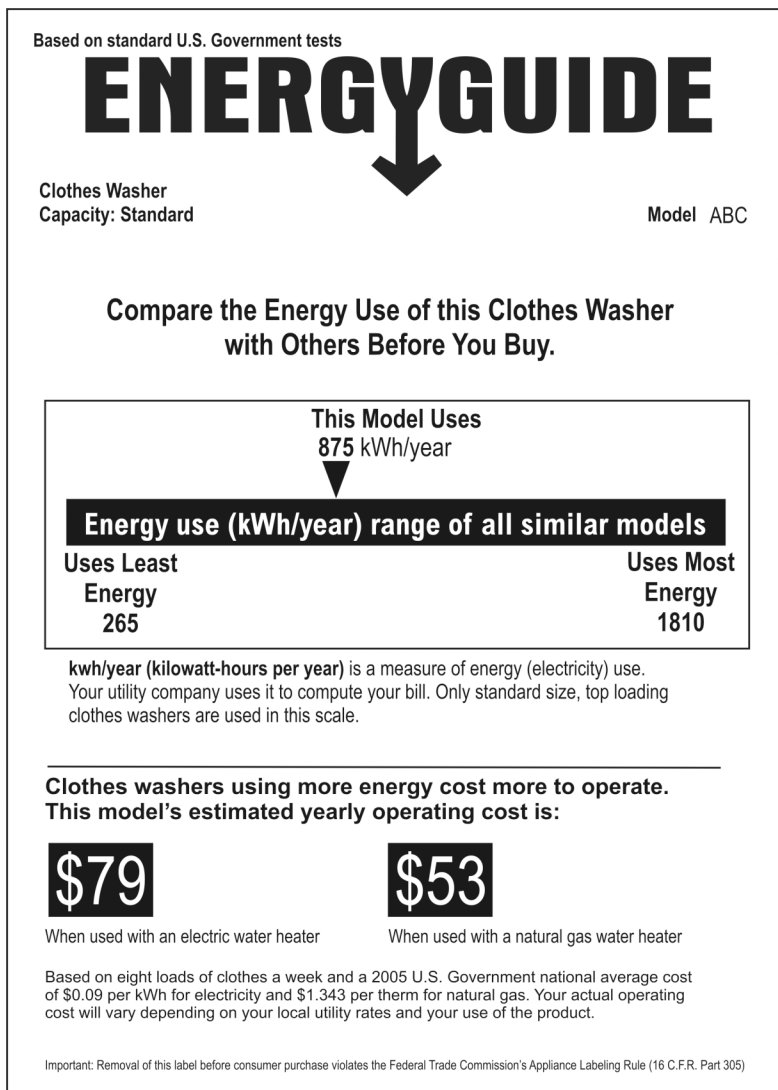
All appliances must have an EnergyGuide label that tells shoppers how much energy it uses. This way, people can compare the life cycle cost of the appliances, as well as the purchase price. The life cycle cost of an appliance is the purchase price plus the energy cost over the life of the appliance. An energy-saving clothes washer might cost more to buy, but it would use a lot less energy than a cheaper model.

The law requires EnergyGuide labels on all new refrigerators, freezers, water heaters, dishwashers, clothes washers, air conditioners, and furnaces. The EnergyGuide labels list the manufacturer, the model, the capacity, the features, the amount of energy the appliance will use a year, its comparison with similar models, and the estimated yearly energy cost.



Clothes Washer

On the right is an EnergyGuide label from an average energy-using clothes washer. Notice how much more it costs to run the washer if you have an electric water heater than if you have a natural gas water heater.



Clothes Washer A: \$485

U.S. Government Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Clothes Washer
Capacity: Standard

XYZ Corporation
Model 1

Estimated Yearly Operating Cost

\$32

Cost Range of Similar Models

304 kWh
Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.55 cents per kWh and natural gas cost of \$1.218 per therm.
- For more information, visit www.ftc.gov/appliances.

Do you use electricity or natural gas to operate your clothes washer? Multiply the “Estimated Yearly Electricity Use” number by your local utility rate for a more specific estimation of your operating costs.

Clothes Washer B: \$519

U.S. Government Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Clothes Washer
Capacity: Standard

XYZ Corporation
Model 2

Estimated Yearly Operating Cost

\$22

Cost Range of Similar Models

205 kWh
Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.55 cents per kWh and \$1.218 per therm.
- For more information, visit www.ftc.gov/appliances.

Activity 2: Comparing Clothes Washing Machines

You've convinced your family to buy a new clothes washer to replace the old energy hog in your basement. While shopping, you found two similar models that both meet your family's needs. However, only one is an ENERGY STAR qualified washer. You need to choose the one that will save your family the most money. Examine the EnergyGuide Labels and use this information to complete the chart below. Assume your family has an electric water heater. Which clothes washer will you buy?

Clothes Washer A	Expenses	Cost to Date	Clothes Washer B	Expenses	Cost to Date
Purchase Price			Purchase Price		
Year One			Year One		
Year Two			Year Two		
Year Three			Year Three		
Year Four			Year Four		
Year Five			Year Five		
Year Six			Year Six		
Year Seven			Year Seven		
Year Eight			Year Eight		
Year Nine			Year Nine		
Year Ten			Year Ten		
Year Eleven			Year Eleven		

Which clothes washer is ENERGY STAR qualified? How do you know?

What is the ENERGY STAR qualified washer's payback period?

How much money will you save over the lifespan of the washers by choosing the ENERGY STAR qualified machine?

Which clothes washer would you decide to buy? Why?

Activity 5: Spread the Word at Home - as an Energy Saving Detective

Enlist the help of your family to answer the following questions about your clothes washer.

1. Is your clothes washer a conventional model (not ENERGY STAR qualified) or an ENERGY STAR qualified model? _____
2. Is your clothes washer more than ten years old? _____
3. Do you use the sanitary cycle? _____
4. Do you wash or rinse with cold, warm, or hot water? _____
5. Do you wash or rinse with cold, warm, or hot water? _____
6. Do you run the washing machine when it is only half full? _____

If you answered “yes” to any of these questions, discuss with your family ways to fix the energy wasting behavior so you become energy savers.

1. Did you find any energy wasters? _____
2. Explain what you and your family agreed to do to become better energy savers.

